GREEN BUILDINGS INNOVATION CLUSTER

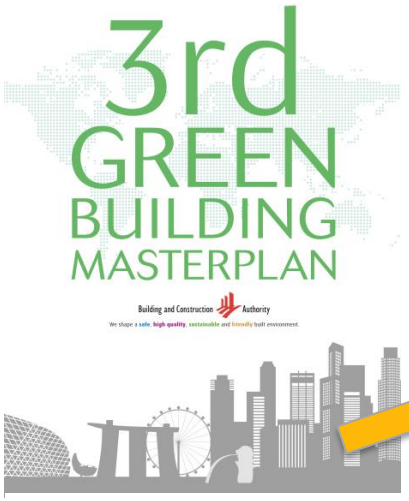
(GBIC)

Experiment • Exhibit • Exchange

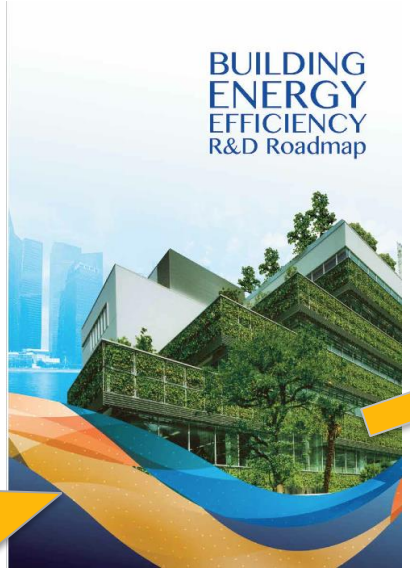
OUTLINE

- Background
- Objectives
- Concept, Approach and Eligibility
- Summary

BACKGROUND



Research Development & Demonstration (RD&D) to play a greater role in the next phase of development of green buildings.

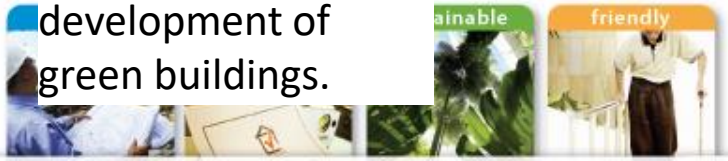


Building Energy Efficiency R&D Roadmap to address energy and climate change challenge.

Green Buildings Innovation Cluster (GBIC)

A $52 million integrated research, development and demonstration (RD&D) Hub:

GBIC established partnerships with eight Green Mark Champions: Ascendas Land Singapore Pte Ltd, CapitaLand Limited, City Developments Limited, Housing and Development Board, JTC Corporation Keppel Land International Limited, National University of Singapore and the Nanyang Technological University



OBJECTIVES

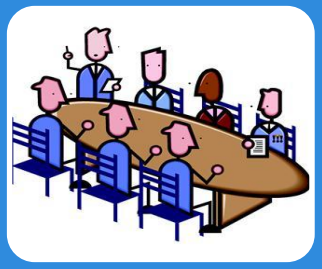
GREEN BUILDINGS INNOVATION CLUSTER (GBIC)

- A one-stop integrated RD&D hub to **experiment**, **exhibit**, and **exchange** knowledge of promising building energy efficient solutions

- **Accelerate commercialisation** of promising building energy efficient technologies and solutions

GBIC- Demonstration (GBIC-Demo)

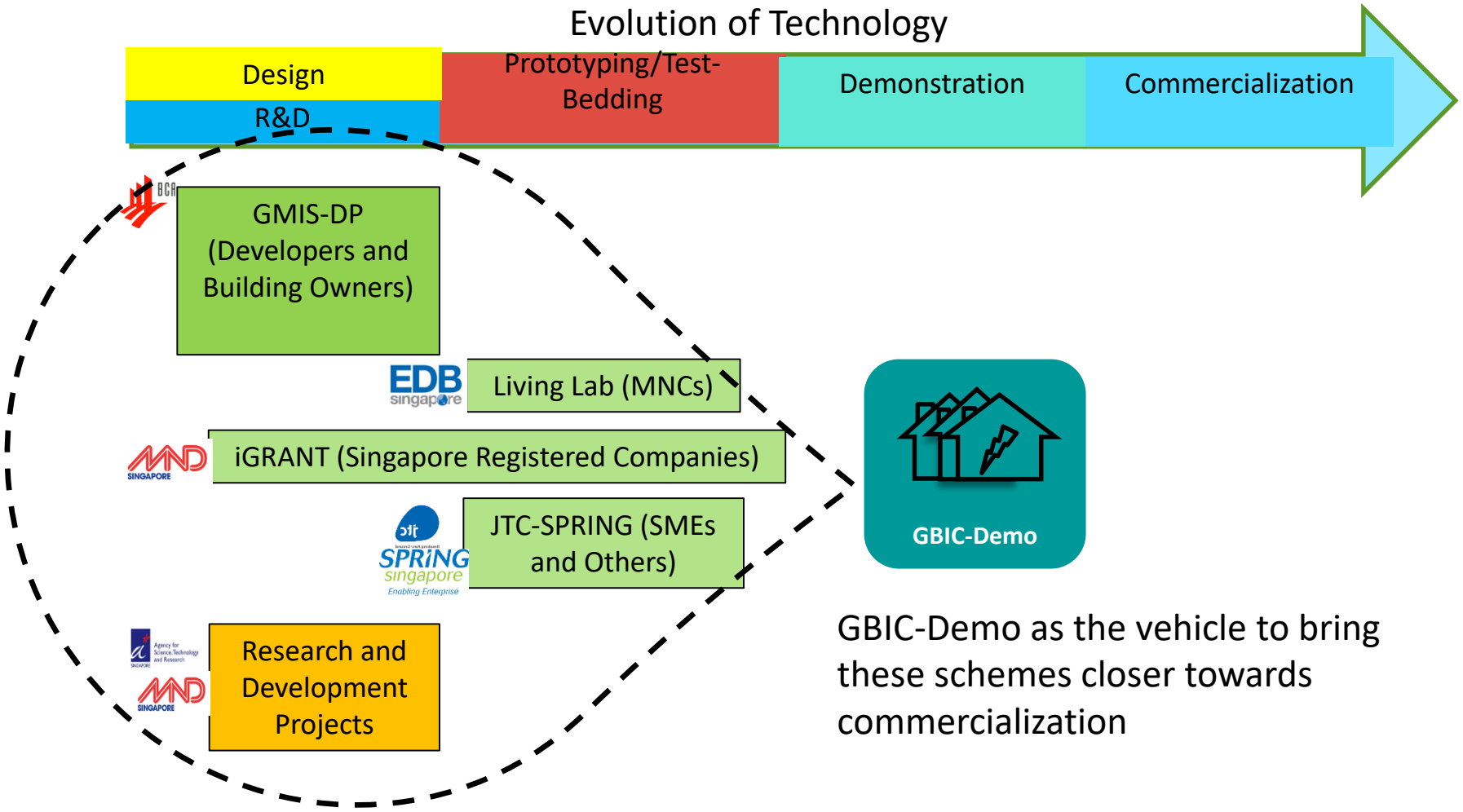
To promote and bring innovations closer to market adoption



To aid policy formulation

To gain performance data and set new benchmarks for energy efficiency improvement in buildings

Concept



GBIC-Demo as the vehicle to bring these schemes closer towards commercialization

Concept

Challenges identified:

1. Few R&D projects translated into prototypes and commercialized

2. Lack facilities to carry out demonstrations

3. Absence of Validated Performance Data

4. Risk Adverse Building Owners

Propositions

1. Co-funding to share the risk of Demonstration

2. Secure partners to host demonstrations

3. Validate performance of demonstrated technologies

4. Share information with wider audience

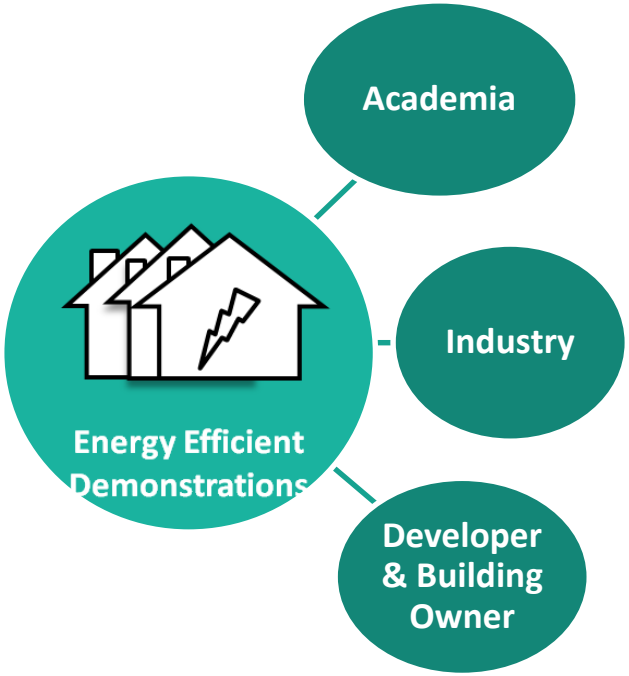
APPROACH

- Launched in Mar 2015
- $20m out of the $52m GBIC Programme
- Co-funding (up to 70% or $3m whichever is lower)

Supports large-scale demonstration of promising energy-efficient technologies integrated to achieve greater energy savings for the building.

Encourage building owners and developers to demonstrate innovative energy efficient technologies developed from R&D and/or proven technologies not widely adopted.

Validated performance through data collection



Enhanced GBIC Programme (Sep 2019)
Additional $7m for GBIC-Demo projects

APPROACH

Funding covers…

- Design and customisation
- Installation & Commissioning
- Manpower
- Equipment & Materials
- Removal of technology
- Instruments for data capturing

- ❑ New or existing buildings
- ❑ Lead applicant = building owner or developer
- ❑ Partner with industry (technology supplier/system integrator) and 3rd party verification (ESD, ESCO or researcher)

Deliverables…

1. Performance

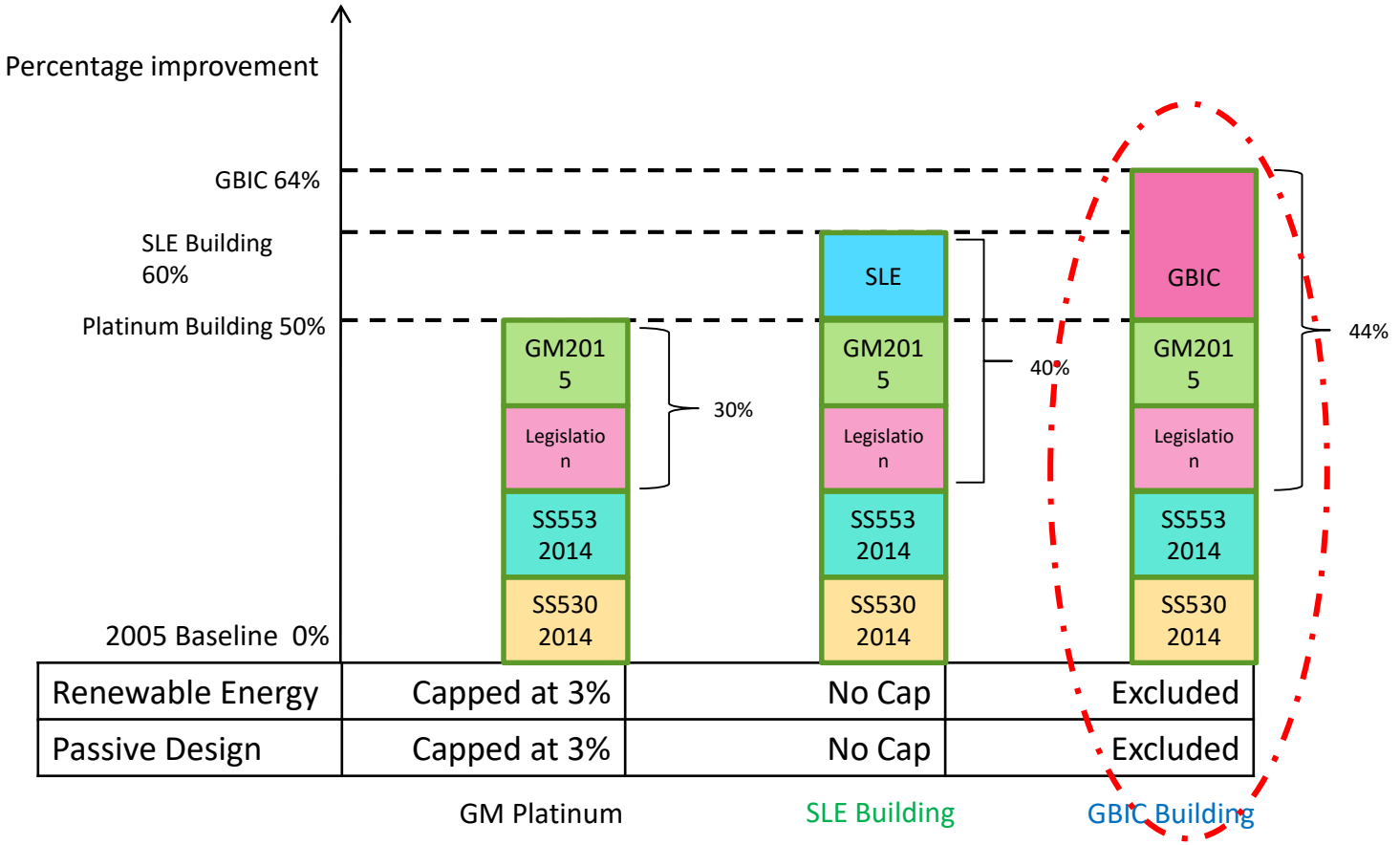
- Technology - Achieve 20% energy savings over best in class and:
- Building Energy Utilisation Intensity (EUI) to top 10% of EUI or

>20% improvement in energy savings compared to best-in-class energy performing building

2. Report

Mid-term/final report with at least 12 months of validated performance data. Project no longer than 5 years to complete

COMPARISON OF GM PLATINUM, SLE AND GBIC BUILDINGS



**Challenges in meeting the GBIC-Demo pre-requisites of 44% energy savings with innovative technologies*

GBIC- Demonstration (GBIC-Demo)

Stages	Deliverables	Tranche
1. Design and customisation	Completion of design work and modifications	Quarterly reimbursement claims up to agreed retention amount.
2. Equipment, Installation and Commissioning	Receipt of delivery order & commissioning report	
3. Mid-Term Review (6-12 months after implementation depending on project timeline)	<u>Mid-Term Review</u> • Performance (meet energy savings target) • Submission of Mid-Term Report, Presentation and Assessment & Recommendations	<u>50% of retention amount</u> *a) Performance; &* *b) Report submission*
4. Completion of Project with detailed M&V report submitted independent researcher	<u>Final Review</u> • Performance (meet energy savings target) • Submission of Final Report, Presentation & Feasibility of project for replication	<u>Remaining retention amount</u> *Breakdown same as above*

Eligibility

1. Singapore-based companies/ Research Institutions & Academia/ Public Sector

2. The building where the demonstration will take place must be located in Singapore.

3. Project Team with Lead applicant (Developer/ Building Owner) working with the Technology Provider/System integrator and Researcher/Verification partner (3rd party is encouraged).

4. Project should not have received funding from other agencies for the same purpose.

5. Lead applicant must show evidence of financial capacity to complete the project on its own, or with a partner.

6. Project should not have commenced at the time of application.

THANK YOU